



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hawks, et al.

Serial No.: 09/638,172

Filed: August 11, 2000

For: **Method and Structure for Securing a
Mold Compound to a Printed Circuit
Board**

Art Unit: 2831

Examiner: Hung V. Ngo

14/aw/wt.0
Theresa
11/19/02
RECEIVED
NOV 18 2002
TECHNOLOGY CENTER 2500

AMENDMENT AND RESPONSE TO OFFICE ACTION

Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Dear Sir/Madam:

This is in response to the Office Action dated July 3, 2002 in the above-referenced patent application. Please enter and consider the following amendments and remarks.

11/15/2002 DTESSER1 00000041 09638172

01 FC:1251

110.00 OP

In the Claims:

Please enter the following amended claim 11:

11. (Thrice Amended) A structure comprising:

a printed circuit board including a die attached to a top surface of said printed circuit board;

said printed circuit board comprising a first layer of metal on a bottom surface of said printed circuit board;

said printed circuit board further comprising a second layer of metal on said top surface of said printed circuit board, wherein said second layer of metal is situated below said die;

a blind hole traversing said second layer of metal of said printed circuit board, said blind hole being adjacent to said die, said blind hole being filled with a mold compound, said blind hole being unplated, said mold compound surrounding and covering said die, wherein said mold compound is locked into said second layer of metal of said printed circuit board.

Please enter the following new claims 20-29:

--20. A structure comprising:

*Sub
F1*
a printed circuit board including a die attached to a top surface of said printed circuit board;

said printed circuit board comprising a first layer of metal on a bottom surface of said printed circuit board;

12
said printed circuit board further comprising a second layer of metal on said top surface of said printed circuit board, wherein said second layer of metal is situated below said die;

a through hole traversing said first and second layers of metal of said printed circuit board, said through hole being adjacent to said die, said through hole being filled with a mold compound, said mold compound being selected from the group consisting of multifunctional epoxy, novolac, and biphenyl resin, said through hole being unplated, said mold compound surrounding and covering said die, wherein said mold compound is locked into said first and second layers of metal of said printed circuit board.--

--21. The structure of claim 20 further comprising a bond wire, wherein a first end of said bond wire is bonded to a die bonding pad on said die and a second end of said bond wire is bonded to a printed circuit board bonding location on said printed circuit board.--

--22. The structure of claim 20 further comprising a layer of die attach between said die and said printed circuit board.--

--23. The structure of claim 20 further comprising a layer of die attach between said die and said second layer of metal.--

--24. The structure of claim 20 wherein said second layer of metal comprises gold-plated copper.--

Sub F27
--25. A plastic laminate-based molded printed circuit board package comprising:
a printed circuit board including a semiconductor die attached to a top surface of
said printed circuit board;

said printed circuit board comprising a first layer of metal on a bottom surface of
said printed circuit board;

said printed circuit board further comprising a second layer of metal on said top
surface of said printed circuit board, wherein said second layer of metal is situated below
said die;

a through hole traversing said first and second layers of metal of said printed
circuit board, said through hole being adjacent to said semiconductor die, said through
hole being filled with a mold compound, said through hole being unplated, said mold
compound surrounding and covering said semiconductor die, wherein said mold

F2
Cmt.
compound is locked into said first and second layers of metal of said printed circuit board.--

--26. The structure of claim 25 further comprising a bond wire, wherein a first end of said bond wire is bonded to a semiconductor die bonding pad on said semiconductor die and a second end of said bond wire is bonded to a printed circuit board bonding location on said printed circuit board.--

Cmt.
--27. The structure of claim 25 further comprising a layer of die attach between said semiconductor die and said printed circuit board.--

--28. The structure of claim 25 further comprising a layer of die attach between said die and said second layer of metal.--

--29. The structure of claim 25 wherein said second layer of metal comprises gold-plated copper.--